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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b> <b>G06F 17/00</b>	<b>A2</b>	<b>(11) International Publication Number:</b> <b>WO 00/68823</b> <b>(43) International Publication Date:</b> 16 November 2000 (16.11.00)
<b>(21) International Application Number:</b> PCT/US00/12456 <b>(22) International Filing Date:</b> 8 May 2000 (08.05.00) <b>(30) Priority Data:</b> 09/309,161 10 May 1999 (10.05.99) US <b>(71) Applicant:</b> YAHOO, INC. [US/US]; 3420 Central Expressway, Santa Clara, CA 95051 (US). <b>(72) Inventors:</b> CUI, Lawrence; 1047 South Blaney Avenue, San Jose, CA 95129 (US). MARCHUKOV, Mark, Vladimirovich; Apartment 9, 250 Curtner Avenue, Palo Alto, CA 94306 (US). VO, Phan, T.; 3673 Thrush Terrace, Fremont, CA 94555 (US). MENDHEKAR, Anurag; 946 Tamarack Lane #11, Sunnyvale, CA 94086 (US). VISHWANATH, Mohan; 537 Tarter Court, San Jose, CA 95136 (US). <b>(74) Agent:</b> FLIESLER, Martin, C.; Fliesler, Dubb, Meyer & Lovejoy LLP, Suite 400, Four Embarcadero Center, San Francisco, CA 94111-4156 (US).		<b>(81) Designated States:</b> AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>
<b>(54) Title:</b> METHOD AND APPARATUS FOR PROXY SERVER COOKIES		
<b>(57) Abstract</b>  Methods and apparatus to handle cookies in a response Web page requested by a client. One method includes the steps of (a) generating a session id to identify a new session, (b) stripping off any cookies set by an external web site from the response header of the response Web page, (c) appending the session id to all of the links embedded in the response page, and (d) sending the modified response page, with the new header, to the client.		

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## METHOD AND APPARATUS FOR PROXY SERVER COOKIES

### BACKGROUND OF THE INVENTION

The present invention relates generally to a Web technology and more particularly to methods and apparatus for proxy server cookies.

5 Cookies have been used in the World Wide Web (Web) to track a visitor's session state. However, many browsers running on devices with limited memory capacity do not or cannot accept cookies. Also, for privacy reasons, many browsers also disable cookie handling mechanisms of their browsers. As a result, these browsers cannot access web pages that mandate cookie handling.

10 Thus there is a need for an alternative method to handle cookies in the Web.

### SUMMARY

The present invention is on methods and apparatus that can handle cookies for  
15 devices with limited memory capacity.

In one embodiment, this is done by a server, which centralizes cookie handling for browsers on a number of clients. Not only does the invention solve the problems of browsers that cannot handle cookies, the invention also protects the privacy of surfers by hiding their identities.

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### DETAILED DESCRIPTION OF THE INVENTION

One embodiment of the present invention is based on the concept of dynamic session, which starts when a browser sends a fresh request to a proxy server to access  
25 information on the Web.

In the present invention, the Web is defined as a network of computers that publish information using a standard protocol, such as HTTP, FTP or TCP/IP. A

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dynamic session is defined as a request that the proxy server has no prior memory of.

When a new session is started, a unique session id can be generated. Within the same session, all embedded links in the response page can then be stamped with the same session id. A sessioned request is defined as a request that has session id information in addition to the request itself. The proxy server can relate a sessioned request to a session via the session id. The session continues as long as the user stays in the links of the first page or pages generated from links in the first page. A session expires when its age reaches the lifetime set by the server. The session lifetime can be configurable through a configuration parameter. Due to the dynamic nature of the session, users do not have to log into the proxy server that provides centralized cookie handling services. Same user can start multiple sessions at the same time.

In one embodiment, a client sends a fresh request for a particular URL to the proxy server. The proxy server first checks the request header to determine whether the browser of the client is capable of handling cookies. If the browser accepts cookies, and if the browser does not intend to disable cookie-handling capabilities, the proxy server would not provide cookie service. Otherwise, the proxy server first generates a session id to identify the new session.

The proxy server then sends the request to the targeted external web site to get the corresponding page. After getting the response page, the proxy server first strips off any cookies set by the external web site from the response header. The cookies, owned by a particular session and identified by the session id, are typically stored in a cookie repository for subsequent requests within the session.

In one embodiment, the session id, or its encoded or encrypted version, is in a configuration of a URL, or an address the web browser recognizes.

The proxy server then appends the session id or its encoded or encrypted version to all of the links embedded in the response page. Then, the proxy server sends the modified response page, with the new header, to the corresponding client.

In one embodiment, when a sessioned request is received, the proxy first

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retrieves and stripes off the session id from the request URL. The session id and the URL are then used to retrieve the cookies from the cookie repository. The proxy then uses the cookies retrieved to generate a cookie header. The new cookie header is then appended to the original request header. The session information is removed from the

5 URL. The request is then sent to the external web site to fetch the page. After receiving the page from the external web site, the same procedure as that of handling a fresh request is used to process the header and the page.

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**CLAIMS**

1. A method to handle cookies in a response Web page requested by a client comprising the steps of:
  - generating a session id to identify a new session;
  - 5 striping off any cookies set by an external web site from the response header of the response Web page;
  - appending the session id to all of the links embedded in the response page; and
  - sending the modified response page, with the new header, to the client.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
16 November 2000 (16.11.2000)

PCT

(10) International Publication Number  
**WO 00/68823 A3**

- (51) International Patent Classification<sup>7</sup>: **G06F 17/30**, H04L 29/06
- (21) International Application Number: **PCT/US00/12456**
- (22) International Filing Date: **8 May 2000 (08.05.2000)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:  
**09/309,161** **10 May 1999 (10.05.1999)** **US**
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- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:  
— *with international search report*
- (88) Date of publication of the international search report:  
**21 March 2002**
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **METHOD AND APPARATUS FOR PROXY SERVER COOKIES**

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WO 00/68823 A3

## INTERNATIONAL SEARCH REPORT

Int ernational Application No

PCT/US 00/12456

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G06F17/30 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G06F H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, IBM-TDB

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	BARRETT R ET AL: "Intermediaries: new places for producing and manipulating Web content" COMPUTER NETWORKS AND ISDN SYSTEMS, NORTH HOLLAND PUBLISHING, vol. 30, no. 1-7, 1 April 1998 (1998-04-01), pages 509-518, XP004121397 AMSTERDAM, NL ISSN: 0169-7552 section 3.3.1; figure 4 --- -/--	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

20 December 2001

Date of mailing of the international search report

03/01/2002

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

In. tional Application No

PCT/US 00/12456

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>ARUN IYENGAR: "Dynamic Argument Embedding: Preserving State on the World Wide Web" IEEE INTERNET COMPUTING, IEEE SERVICE CENTER, 1 March 1997 (1997-03-01), pages 50-56, XP002164484 PISCATAWAY, NJ, US ISSN: 1089-7801 page 52, left-hand column, line 6 -right-hand column, line 48; figures 2,3 page 56, left-hand column, line 8 -right-hand column, line 13; figure 6 -----</p>	1

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